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EXAMINER	
SOLOMON, GARY L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/602,876	Applicant(s) KUSAKA ET AL.	
	Examiner Gary L Solomon	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 & 21-27* is/are rejected.

7)☒ Claim(s) *13-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4-20-04 have been fully considered but they are not persuasive.

2. In regards to the argument pertaining to claim 1, the applicant submits that Shinotsuka does not disclose **"a generator for generating a switching signal for switching the solid-state image sensing device between the first and second states."**

However, the examiner respectfully disagrees. The applicant states in page 10 of the amendment filed on 4-20-04 that Shinotsuka discloses photo sensors that transition between linear and logarithmic conversion.

Merriam Webster defines transition as a passage from one state, stage, subject, or place to another. Therefore, transition will be read on the term switch.

Shintosuka teaches in Column 5, Lines 35-44 that the photo sensors generate different sensor outputs. Therefore, the photo sensors are generators.

The photo sensors generate the switching signal that switches the sensor from logarithmic to linear conversion when the inflection point is reached.

The first and second states are the linear and logarithmic states.

3. In regards to the argument pertaining to claim 26, the applicant submits that Shinotsuka does not disclose "an evaluation portion for **evaluating brightness distribution** of a subject" and also includes "a determination portion for **determining a brightness range** of the subject."

However, the examiner respectfully disagrees. The data comparator (Figure 5, Element 8) compares a sensor output (the brightness of the subject) for each sensor (Column 7, Lines 9-19)

with the inflection point data. The brightness distribution is illustrated in Figure 3 on the x-axis. It is clearly shown that the brightness distribution of the subject is shown on the x-axis.

Merriam Webster defines evaluate as "to determine or fix the value of." When the comparator compares the brightness distribution on the x-axis, it must first determine what the value is. Therefore, the data comparator evaluates brightness distribution.

With further regard to the second argument presented by the applicant, the evaluation portion does determine the output voltage, which is based on the brightness of the subject, as previously stated.

The Reference Inflection Point Input Device (Figure 5, Element 11) sends input information to the input setting device (Figure 5, Element 9). The reference point data setting device can set the inflection point data at any desired value, thereby altering the output characteristic of the MOS image sensor.

The output characteristic (y-axis) is the brightness is the brightness range (x-axis) of the subject as illustrated in Figure 3.Therefore, the Reference Inflection Point Input device does determine a brightness range of the subject by means of changing the inflection point (Column 7, Lines 54-63). Where the inflection point is located changes where the sensor operates (linear and logarithmic conversion).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-7, & 11-12 & 21-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinotsuka (US 6,191,408).

For claim 1, Shinotsuka discloses an image-sensing apparatus comprising:

a solid-state image-sensing device composed of a plurality of pixels individually including photosensitive portions that generate electric signals (Figure 1, Element 4) in accordance with amount of light incident thereon (Figure 3; Abstract),

the solid-state image-sensing device operating selectively either in a first state in which the individual pixels output signals obtained by linearly converting the electric signals generated by the photosensitive portions thereof or in a second state in which the individual pixels output signals obtained by natural-logarithmically converting the electric signals generated by the photosensitive portions thereof (Figure 3; Abstract); and

a generator for generating a switching signal for switching the solid-state image-sensing device between the first and second states (Column 2, Lines 40-55).

For claim 2, Shinotsuka discloses all the previous imitations and also wherein the pixels of the solid-state image-sensing device individually include transistors to which the electric signals generated by the photosensitive portions are fed, and natural-logarithmically convert the electric signals generated by the photosensitive portions by exploiting a sub threshold characteristic of those transistors (Abstract; Figure 2).

For claim 3, Shinotsuka discloses all the previous imitations and also wherein the solid-state image-sensing device is switched between the first and second states as a result of the

switching signal generated by the generator causing a potential fed to the transistors of the individual pixels to vary (Column 6, Lines 20-36).

For claim 5, Shinotsuka discloses all the previous imitations and also wherein the generator generates the switching signal on a basis of the signal output from the solid-state image-sensing device (Figure 2 and Figure 3; Column 1, Lines 40-55). The device reads a voltage form the incidence illumination, and then at the inflection point, it swings from linear to logarithmic function.

For claim 6, Shinotsuka discloses all the previous imitations and also wherein the generator generates the switching signal in accordance with the brightness of the subject (Figure 3; Column 5, Lines 35-44)

For claim 7, Shinotsuka discloses all the previous imitations and also wherein the generator, when the brightness of the subject to be shot is lower than a predetermined threshold value, generates a switching signal that brings the solid-state image-sensing device into the first state, and, when the brightness of the subject to be shot is higher than the predetermined threshold value, generates a switching signal that brings the solid-state image-sensing device into the second state (Figure 3; Column 5, lines 12-50). The threshold value is the inflection point.

For claim 11, Shinotsuka discloses all the previous imitations and also further comprising: a detector for detecting a brightness range of a subject to be shot, wherein the generator generates the switching signal on a basis of the brightness range of the subject to be shot detected by the detector (Column 1, Lines 27-44; Figure 3).

For claim 12, Shinotsuka discloses all the previous imitations and also further comprising: wherein the generator, the brightness range of the subject to be shot is narrower than

a predetermined threshold value, generates a switching signal that brings the solid state image sensing device into the first state, and when the brightness range is to be wider than the predetermined threshold value, generates a switching signal that brings the solid state image sensing device in to the second state (Column 7, Lines 1-63).

For claim 21, Shinotsuka discloses all the previous imitations and also further comprising: a brightness distribution evaluation portion for evaluating brightness distribution of a subject to be shot on a basis of brightness signals obtained from the individual pixels, wherein the generator generates the switching signal on a basis of the brightness distribution evaluated by the brightness distribution evaluation portion (Figure 3).

For claim 22, Shinotsuka discloses all the previous imitations and also further wherein the pixels each include a photosensitive device having a first electrode to which a direct-current voltage is applied and a second electrode, and a transistor having a first electrode and a control electrode both connected to the second electrode of the photosensitive device and a second electrode, wherein the solid-state image-sensing device is switched between the first and second states as a result of the switching signal from the generator causing a potential difference between the first and second electrodes of the transistor of each pixel to vary (Figure 2, Transistor Q1; Column 4, line 41 through Column 6, Line 18).

For claim 23, Shinotsuka discloses all the previous imitations and also wherein the pixels each include a photosensitive device having a first electrode to which a direct-current voltage is applied and a second electrode, and a transistor having a first electrode connected to the second electrode of the photosensitive device and a second electrode and a control electrode connected together, wherein the solid-state image-sensing device is switched between the first and second

states as a result of the switching signal from the generator causing a potential difference between the first and second electrodes of the transistor of each pixel to vary (Figure 2, Transistor Q1; Column 4, line 41 through Column 6, Line 18).

For claim 24, Shinotsuka discloses all the previous imitations and also wherein the pixels each include a photosensitive device having a first electrode to which a direct-current voltage is applied and a second electrode, and a transistor having a first electrode connected to the second electrode of the photosensitive device, a second electrode, and a control electrode to which a direct current voltage is applied, wherein the solid-state image-sensing device is switched between the first and second states as a result of the switching signal from the generator causing a potential difference between the first and second electrodes of the transistor of each pixel to vary (Figure 2, Transistor Q1; Column 4, line 41 through Column 6, Line 18).

For claim 25, Shinotsuka discloses all the previous imitations and also wherein the pixels each include a photosensitive device having a first electrode to which a direct-current voltage is applied and a second electrode, a first transistor having a first electrode, a second electrode connected to the second electrode of the photosensitive device, and a control electrode, and a second transistor having a first electrode to which a direct-current voltage is applied, a second electrode from which an electric signal is output, and a control electrode connected to the second electrode of the first transistor, wherein the solid-state image-sensing device is switched between the first and second states as a result of the switching signal from the generator causing a potential difference fed to the control electrode of the first transistor of each pixel to vary (Figure 2, Transistor Q1; Column 4, line 41 through Column 6, Line 18).

For claim 26, Shinotsuka discloses an image-sensing apparatus comprising: a plurality of pixels individually including photosensitive portions that generate electric signals in accordance with amount of light incident thereon (Figure 3; Abstract);

a conversion portion for logarithmically converting the electric signals generated by the photosensitive portions; an evaluation portion (Figure 5, Element 8) for evaluating brightness distribution of a subject to be shot on a basis of a signal output from the conversion portion Column 6, Lines 20-37); and a determination portion for determining a brightness range of the subject to be shot on a basis of the brightness distribution evaluated by the evaluation portion Figure 5, Element 11).

Shinotsuka teaches the claimed invention in the matter that he first identifies the brightness amount, judges it, then uses logarithmic or linear response indicative of the proper exposure.

For claim 27, Shintosuka discloses an imaging sensing apparatus comprising:

a solid state image-sensing device composed of a plurality of pixels individually including photosensitive portions (Figure 1, Element 4) that generate electric signals in accordance with an amount of light incident thereon (Figure 3; Abstract),

the solid-state image-sensing device operating in one of a plurality of output states (Figure 3, Linear and Logarithmic Output States); and

a generator for generating a switching signal for selecting one of the plurality of output states based on an output from the solid state image sensing device

(Column 2, Lines 40-55; Shintosuka teaches in Column 5, Lines 35-44 that the photo sensors generate different sensor outputs. Therefore, the photo sensors are generators.),

wherein the plurality of output states include a state in which the individual pixels output signals obtained by linearly converting the electric signals generates by the photosensitive portions thereof and a state which the individual pixels output signals obtained by natural logarithmically converting the electric signals generated by the photosensitive portion thereof (Figure 3; Column 2, Lines 10-55).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 4 & 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinotsuka (US 6,191,408).

For claim 4, Shinotsuka discloses the prior limitations, but he does not explicitly teach wherein the switching signal is a binary voltage level. However, the comparator that Shinotsuka does use is a digital device that take in an input signal, then determines whether it is above or below a certain value, then outputs a high or low (binary signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the invention of Shinotsuka with a switching signal, which is a binary.

For claim 8, it would be an obvious variation of Shinotsuka to include a manual operation to either operate in a logarithmic or linear range. Image sensors with one or the other are well known in the art and isolating the invention to do one or the other would therefore be obvious.

Claims 9 and 10 are also obvious variations of claim 8 and thus are also rejected under the same basis. Adding an input member for receiving a manual operation from an operator, wherein the generator operates selectively either in a first mode in which it generates the switching signal on a basis of the manual operation received through the input member or in a second mode in which it gènerates the switching signal automatically on a basis of a predetermined shooting condition would be obvious since the device already actively is able to switch automatically. Shinotsuka is able to actively switch through an inflection point. It is notoriously well known in the art to use either one of logarithmic or linear conversion. Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention to add a manual input to actively switch from linear to logarithmic conversion o f Shinotsuka's invention in order to accommodate user preference due to an input condition.

Allowable Subject Matter

Claims 13-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: For claims 13-20, the prior art fails to disclose the claimed subject matter. However, the independent claim (1) is rejected as previously noted.

For claim 13, the prior art fails to teach the previous limitations and wherein the generator generates the switching signal on a basis of at least one of a distance to a subject to be shot and a shooting magnification.

For claim 14, the prior art fails to teach the previous limitations and wherein an optical system having a variable focal length, wherein the generator generates the switching signal on a basis of a focal length of the optical system.

For claims 15-18, the prior art fails to teach and wherein n optical system that is focused on a subject to be shot selectively at least either at a wide-angle side or at a telephoto side, wherein the generator generates the switching signal on a basis of whether the optical system is focused at the telephoto side or at the wide-angle side.

For claims 19 and 20, the prior art fails to teach the previous limitations and wherein an optical system that is focused on a subject to be shot selectively at least either at a wide-angle side or at a telephoto side, wherein the generator generates the switching signal on a basis of a shooting range to be shot by the solid-state image-sensing device through the optical system.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L Solomon whose telephone number is (703)-305-4370. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (703)-305-4946. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GLS

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